UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,973	02/14/2001	Frank Kelly	PD-200323	1992

7590 02/08/2007

Hughes Electronics Corporation
Patent Docket Administration
Bldg. 1, Mail Stop A109
P.O. Box 956
El Segundo, CA 90245-0956

EXAMINER	
MAIS, MARK A	
ART UNIT	**PAPER NUMBER**
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

38

Office Action Summary	Application No.	Applicant(s)	
	09/782,973	KELLY ET AL.	
	Examiner	**Art Unit**	
	Mark A. Mais	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 19 January 2007.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1,4-9,12-17,20-25 and 28-36 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,4-9,12-17,20-25 and 28-36 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 24, 2006 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Bradshaw et al. in view of Cheng et al.

3. Claims 1, 4-5, 8-9, 12-13, 16-17, 20-21, 24, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradshaw et al. (USP 6,674,731) in view of Cheng et al. (USP 6,040,851).

4. With regard to claims 1, 9, and 17, Bradshaw et al. discloses the transmission of TCP/IP data over a satellite link from a hub station to a plurality of remote terminal units **[Abstract]**. Bradshaw et al. further teaches user terminals **[col. 4, lines 58-61]** (hosts) connected to remote units **[col. 4, lines 65-67]** (terminal unit). The remote unit contains a receiver **[col. 4, lines 14-15]** and a transmitter **[Fig. 8]** for two-way communication. Bradshaw et al. also teaches the hub use of DVB format data frames **[col. 3, lines 47-49]**. The receiver must contain a MAC to DVB converter **[col. 12, lines 38-40]** to conform to DVB protocol format that is supported by the hub **[col. 3, line 49]**. Bradshaw et al. also teaches an RF receiver coupled to an antenna to permit exchange of data between the remote terminal and the satellite **[Fig. 10]**. A burst demodulator must be present in the RF receiver for demodulating the signal over the satellite link due to the nature of satellite communications. The data frame conforms with the DVB protocol format (i.e., the return channel frame format) **[col. 3, line 49]**. The hub station **[Fig. 2, 104]** is shown with the antenna and the RF transmitter/receiver. Thus, these elements are interpreted as containing the satellite-to-hub interface. Bradshaw et al. further discloses that the hub is connected to an external packet switched network **[Fig. 2, element 24; col. 4, lines 25-29]**, which, in this case, is the internet. The hub must necessarily be able to convert the protocol data frames received from the satellite into requests to/from content servers **[col. 5, lines 13-17]**. Bradshaw et al. also teaches a multi-layer protocol interface for the hub-to-terminal interface as the TCP/IP data is encapsulated into a MAC data frame **[col. 7, lines 62-63]** and because the TCP/IP frames are also formatted within the DVB frame **[col. 8, lines 47-51]**.

Bradshaw et al. fails to specifically disclose the transmission of data bursts from the terminal to the host via a direct USB connection. Bradshaw et al. discloses that the connection

between the remote unit 108A (terminal) and the user terminal 118A (host) is a LAN 116 **[Fig. 2]**. Bradshaw et al. can use a standardized bus (e.g., the IEEE 802.6 DQDB) for conveying bursty video, which also has the advantage of improved performance characteristics **[*see generally*, col. 3, lines 65-67]**. Thus, the remote unit 108A (terminal) in Bradshaw et al. receives the wireless signals from satellite 106 and transports them to the user terminal 118A host via a LAN 116 **[Fig. 2]**. A LAN involves much more complexity in connecting devices, such as the remote unit 108A (terminal), to multiple user terminals 118A (hosts) **[*See Id.*]**. Furthermore, a remote unit 108A (terminal) requires an interface and a driver in order to condition the signal and provide the physical interface to the LAN **[col. 14, lines 15-23]**. LAN 116 allows remote unit 108A (terminal) to transport information in multiple formats/standards to those multiple user terminals 118A (hosts), which are connected to LAN 116. It is well known to those skilled in the art to use a direct connection between a terminal and host, instead of a LAN, because such a connection reduces the complexity of communicating over a LAN and allows more direct and efficient communications between the two devices. Moreover, it is also well known to those of ordinary skill in the art that there must be a functional interface between a receiver and transmitter (or transceiver) such that the transmitter receives data from the functional interface for transmission.

Cheng et al. (USP 6,040,851) discloses a set-top box along with a receiver sub-system that integrates network-dependent functions into a digital interface conditional access module (DICAM) (host interface) which then can implement bursty video **[MPEG 1, 2, or 3, col. 6, line 25]** from a variety of sources (to include satellite dishes and cable) and then implement them on a personal computer (host) to receive the data **[Abstract; col. 1, lines 11-33]**. Cheng et al. uses

the combination of a set-top universal box (STUB) (terminal) and the DICAM (host interface) to separate out the network-dependent and network-independent streams and functions **[Figs. 3-5; col. 2, lines 8-17]**. Thus, Cheng et al.'s STUB/DICAM **[Figs. 3-5]** receives satellite input signals **[col. 6, line 16]** and outputs the data/streams via a direct connection such as a universal serial bus (USB) **[col. 6, lines 20-26]**. A USB bus specifically supports (common) bursty video traffic. Bradshaw et al. and Cheng et al. both involve the transmission and reception of data over a wireless communication channel [both receive satellite signals]. Moreover, both Bradshaw et al. and Cheng et al. disclose integrated services, specifically, transmitting the received data to a user terminal [user terminal 118A in Bradshaw et al. and a PC in Cheng et al.]. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used the received satellite communications of Bradshaw et al. with the less-complex and directly-connected USB bus disclosed in Cheng et al. to connect the remote unit 108A (terminal) and the user terminal 118A (host) because integrated services require interoperability between the receipt, and use, of bursty video data transmissions which contribute to improved performance characteristics.

5. With regard to claims 4, 12, and 20, Bradshaw et al. discloses all teaches that MPEG format data is packaged into DVB protocol format **[col. 2, lines 66-67]**, and TCP/IP data is encapsulated into an Ethernet MAC data frame **[col. 7, lines 62-63]**, that is, multi-layer protocol with support for DVB.

6. With regard to claim 5, Bradshaw et al. discloses that the data exchanged over the satellite link is TCP/IP **[col. 3, lines 37-39]**.

7. With regard to claims 8, 16, and 24, Bradshaw et al. discloses that the packet-switched network is the internet **[Fig. 2, element 24]**.

8. With regard to claims 13 and 21, Bradshaw et al. discloses IP **[col. 7, lines 62-63]**, an IETF-standardized protocol used for interfacing receiver and transmitter units, as well as for transmitting data.

9. With regard to claims 33-35, neither Bradshaw et al. nor Cheng et al. specifically disclose using USB super frames to send data bursts to the host. Cheng et al. discloses a USB serial interface, which can handle bursty video and uses USB frames. It is well known to those skilled in the art that USB super frames can be used by devices sending video data (and other isochronous applications) when (a) there are large amounts of data to be sent; and (b) the device can reserve enough time slots to send the super frame [wherein problems with USB bus cycles and bandwidth can arise when the device has to contend with other devices on the same USB bus]. Since the combination of Bradshaw et al. and Cheng et al. teaches the less-complex and directly-connected USB bus between remote unit 108A (terminal) and user terminal 118A (host), as noted above, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used USB super frames to send large bursts of video data between remote unit

108A (terminal) and user terminal 118A (host) because there would be no other device to contend with for the USB bus's cycle or bandwidth.

Bradshaw et al. in view of Cheng et al. further in view of Birdwell et al.

10. Claims 6, 14, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradshaw et al. in view of Cheng et al. as applied to claims 1, 9, and 17 above, and further in view of Birdwell et al. (US Patent Publication 2001/0024435).

11. With regard to claims 6, 14, and 22, Bradshaw et al. does not specifically disclose little and big endian data formats. However, Birdwell et al. discloses endian formats for IP packets transmitted over a satellite link **[paragraph 0058]**. Bradshaw et al. requires the determination of the beginning, the end, the LSB, and/or the MSB of the transmitted data frames in order to process the data frames. Endian formats aid in determining whether the first byte in the transmitted frames is the LSB or MSB. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used the teachings of Bradshaw et al. in processing of transmitted data frames to have used the endian formats to aid in determining the LSB and MSB so that data alignment can be achieved at the receiver for either synchronization or CRC calculations.

Bradshaw et al. in view of Cheng et al. further in view of Jorgenson et al.

12. Claims 7, 15, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradshaw et al. in view of Cheng et al. as applied to claims 1, 9, and 17 above, and further in view of Jorgenson et al. (USP 6,680,922).

13. With regard to claims 7, 15, and 23, Bradshaw et al. does not specifically disclose IGD packets. However, Jorgenson discloses UDP for transmission of packets over a wireless link **[col. 12, lines 46-48]**. IGD packets are formed from UDP packets. Therefore, it is obvious to those of ordinary skill in the art that UDP datagrams convey useful information parameters about the wireless link including the return channel ID and loading information. Moreover, UDP/IP packets encapsulate multiple data types, including IGD packets.

Bradshaw et al. in view of Cheng et al. further in view of Dillon et al.

14. Claims 25, 28, 29, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradshaw et al. in view of Cheng et al. and further in view of Dillon et al. (USP 5,995,725).

15. With regard to claim 25, Bradshaw et al. discloses the transmission of TCP/IP data over a satellite link from a hub station to a plurality of remote terminal units **[Abstract]**. Bradshaw et al. further teaches user terminals **[col. 4, lines 58-61]** (hosts) connected to remote units **[col. 4, lines 65-67]** (terminal unit). The remote unit contains a receiver **[col. 4, lines 14-15]** and a

transmitter **[Fig. 8]** for two-way communication. Bradshaw et al. also teaches the hub use of DVB format data frames **[col. 3, lines 47-49]**. The receiver must contains a MAC to DVB converter **[col. 12, lines 38-40]** to conform to DVB protocol format that is supported by the hub **[col. 3, line 49]**. Bradshaw et al. also teaches an RF receiver coupled to an antenna to permit exchange of data between the remote terminal and the satellite **[Fig. 10]**. A burst demodulator must be present in the RF receiver for demodulating the signal over the satellite link due to the nature of satellite communications. The data frame conforms with the DVB protocol format (i.e., the return channel frame format) **[col. 3, line 49]**. The hub station **[Fig. 2, 104]** is shown with the antenna and the RF transmitter/receiver. Thus, these elements are interpreted as containing the satellite-to-hub interface. Bradshaw et al. further discloses that the hub is connected to an external packet switched network **[Fig. 2, element 24; col. 4, lines 25-29]**, which, in this case, is the internet. The hub must necessarily be able to convert the protocol data frames received from the satellite into requests to/from content servers **[col. 5, lines 13-17]**. Bradshaw et al. also teaches a multi-layer protocol interface for the hub-to-terminal interface as the TCP/IP data is encapsulated into a MAC data frame **[col. 7, lines 62-63]** and because the TCP/IP frames are also formatted within the DVB frame **[col. 8, lines 47-51]**

Bradshaw et al. fails to specifically disclose the transmission of data bursts from the terminal to the host via a direct USB connection. Bradshaw et al. discloses that the connection between the remote unit 108A (terminal) and the user terminal 118A (host) is a LAN 116 **[Fig. 2]**. Bradshaw et al. can use a standardized bus (e.g., the IEEE 802.6 DQDB) for conveying bursty video, which also has the advantage of improved performance characteristics ***[see generally*, col. 3, lines 65-67]**. Thus, the remote unit 108A (terminal) in Bradshaw et al. receives

the wireless signals from satellite 106 and transports them to the user terminal 118A host via a LAN 116 **[Fig. 2]**. A LAN involves much more complexity in connecting devices, such as the remote unit 108A (terminal), to multiple user terminals 118A (hosts) **[*See Id.*]**. Furthermore, a remote unit 108A (terminal) requires an interface and a driver in order to condition the signal and provide the physical interface to the LAN **[col. 14, lines 15-23]**. LAN 116 allows remote unit 108A (terminal) to transport information in multiple formats/standards to those multiple user terminals 118A (hosts), which are connected to LAN 116. It is well known to those skilled in the art to use a direct connection between a terminal and host, instead of a LAN, because such a connection reduces the complexity of communicating over a LAN and allows more direct and efficient communications between the two devices. Moreover, it is also well known to those of ordinary skill in the art that there must be a functional interface between a receiver and transmitter (or transceiver) such that the transmitter receives data from the functional interface for transmission.

Cheng et al. (USP 6,040,851) discloses a set-top box along with a receiver sub-system that integrates network-dependent functions into a digital interface conditional access module (DICAM) (host interface) which then can implement bursty video **[MPEG 1, 2, or 3, col. 6, line 25]** from a variety of sources (to include satellite dishes and cable) and then implement them on a personal computer (host) to receive the data **[Abstract; col. 1, lines 11-33]**. Cheng et al. uses the combination of a set-top universal box (STUB) (terminal) and the DICAM (host interface) to separate out the network-dependent and network-independent streams and functions **[Figs. 3-5; col. 2, lines 8-17]**. Thus, Cheng et al.'s STUB/DICAM **[Figs. 3-5]** receives satellite input signals **[col. 6, line 16]** and outputs the data/streams via a direct connection such as a universal

serial bus (USB) **[col. 6, lines 20-26]**. A USB bus specifically supports (common) bursty video traffic. Bradshaw et al. and Cheng et al. both involve the transmission and reception of data over a wireless communication channel [both receive satellite signals]. Moreover, both Bradshaw et al. and Cheng et al. disclose integrated services, specifically, transmitting the received data to a user terminal [user terminal 118A in Bradshaw et al. and a PC in Cheng et al.]. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used the received satellite communications of Bradshaw et al. with the less-complex and directly-connected USB bus disclosed in Cheng et al. to connect the remote unit 108A (terminal) and the user terminal 118A (host) because integrated services require interoperability between the receipt, and use, of bursty video data transmissions which contribute to improved performance characteristics.

16. With regard to claim 28, Bradshaw et al. does not specifically disclose processors executing instructions to configure one or more of the interfaces. However, Dillon et al. discloses a satellite-based internet access system. The system of Dillon et al. contains several elements, including an application server and interface, hybrid gateway, and satellite gateway. A processor, executing instructions stored in memory may configure the gateway and the interfaces **[col. 3, lines 62-65]**. It is obvious to one of ordinary skill in the art that the same processor operating under instructions stored in memory, can also configure other/multiple interfaces. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the two-way satellite communications system of Bradshaw et al. to include the stored instructions executing in the processors of Dillon et al. because integrated services require

interoperability between transmissions which contribute to improved performance characteristics as well as universal compatibility as well as flexibility.

17. With regard to claim 29, Bradshaw et al. discloses IP **[col. 7, lines 62-63]**, an IETF-standardized protocol used for interfacing receiver and transmitter units, as well as for transmitting data.

18. With regard to claim 32, Bradshaw et al. discloses that the packet-switched network is the internet **[Fig. 2, element 24]**.

19. With regard to claim 36, neither Bradshaw et al. nor Cheng et al. specifically disclose using USB super frames to send data bursts to the host. Cheng et al. discloses a USB serial interface, which can handle bursty video and uses USB frames. It is well known to those skilled in the art that USB super frames can be used by devices sending video data (and other isochronous applications) when (a) there are large amounts of data to be sent; and (b) the device can reserve enough time slots to send the super frame [wherein problems with USB bus cycles and bandwidth can arise when the device has to contend with other devices on the same USB bus]. Since the combination of Bradshaw et al. and Cheng et al. teaches the less-complex and directly-connected USB bus between remote unit 108A (terminal) and user terminal 118A (host), as noted above, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used USB super frames to send large bursts of video data between remote unit

108A (terminal) and user terminal 118A (host) because there would be no other device to contend with for the USB bus's cycle or bandwidth.

Bradshaw et al. in view of Cheng et al. and Dillon et al., further in view of Birdwell et al.

20. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bradshaw et al., Cheng et al., and Dillon et al. as applied to claim 25 above, and further in view of Birdwell et al.

21. With regard to claim 30, Bradshaw et al. does not specifically disclose little and big endian data formats. However, Birdwell et al. discloses endian formats for IP packets transmitted over a satellite link **[paragraph 0058]**. Bradshaw et al. requires the determination of the beginning, the end, the LSB, and/or the MSB of the transmitted data frames in order to process the data frames. Endian formats aid in determining whether the first bytes in the transmitted frames are the LSB or MSB. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used the teachings of Bradshaw et al. in processing of transmitted data frames to have used the endian formats to aid in determining the LSB and MSB so that data alignment can be achieved at the receiver for either synchronization or CRC calculations.

Bradshaw et al. in view of Cheng et al. and Dillon et al., further in view of Jorgenson et al.

22. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bradshaw et al. in view of Cheng et al. and Dillon et al. as applied to claim 25 above, and further in view of Jorgenson et al. (USP 6,680,922).

23. With regard to claim 31, Bradshaw et al. does not specifically disclose IGD packets. However, Jorgenson discloses UDP for transmission of packets over a wireless link **[col. 12, lines 46-48]**. IGD packets are formed from UDP packets. Therefore, it is obvious to those of ordinary skill in the art that UDP datagrams convey useful information parameters about the wireless link including the return channel ID and loading information. Moreover, UDP/IP packets encapsulate multiple data types, including IGD packets.

Response to Arguments

24. Applicant's arguments with respect to claims 1, 4-5, 8-9, 12-13, 16-17, 20-21, 24, and 33-35 have been considered but are moot in view of the new ground(s) of rejection.

25. Applicant's representative argues that Bradshaw et al. fails to disclose, apparently, an interface that permits data exchange between a receiving unit and a transmitting unit in a single terminal **[Applicant's Response dated November 24, 2006, page 11, lines 3-11]**. As explained in the rejections above, Bradshaw et al. discloses, teaches, and/or suggests several interfaces.

Specifically, Bradshaw et al. is interpreted as encompassing the interface that receives data from the interface and permits translation of data from one protocol to another [i.e., terminal interface].

Conclusion

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark A. Mais whose telephone number is 572-272-3138. The examiner can normally be reached on M-Th 5am-4pm.

27. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

28. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAM
January 24, 2007

WELLINGTON CHIN
SUPERVISORY PATENT EXAMINER